NOTES ON THE LIFE HISTORY OF THE BLACK-CRESTED ANT SHRIKE IN SURINAM

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THE Black-crested Ant Shrike (*Sakesphorus canadensis*) is a medium-sized member of the large, neotropical family of antbirds (Formicariidae). In the male the head, sides of face, throat, and breast are uniform black. The abdomen and sides of the breast are slate gray, while the upper back is smoke brown. The wing coverts are edged with white as are the tips of the tail feathers. The male has a conspicuous black crest. The female is very different, as she lacks all the black, while the head, crest, and back are rufous, and the breast is ochraceous.

The weights of eight specimens collected by me in Surinam were: for five males, 20, 22, 24.6, 24.8, and 26.5 gm.; for three females, 20, 25, and 27.8 gm.

The species ranges from northern Colombia, Venezuela, Trinidad, and the three Guianas to northern Brazil. Peters (1951:160) recognized seven subspecies, the nominate race being confined to Surinam and French Guiana.

In the coastal area of Surinam the Black-crested Ant Shrike is a common bird in the undergrowth of secondary forest. It is especially numerous in the thickly overgrown sand reefs so characteristic of this region, but it also occurs in the vast "Parwa," the mangroves (*Avicennia nitida*) bordering the seacoast in a broad strip. In cultivated areas it is equally common in the coffee plantations and in waste land.

The birds are mostly seen in pairs, foraging not only in trees and shrubbery but also on the ground. Their flight is rather weak and they apparently do not like to cross open spaces, as they fly low over the ground when doing this.

In my garden, which is situated at the edge of a coffee plantation, they are seen the whole year 'round and in 1952 a pair nested twice, using the same nest, at a height of about three and one half meters in a tree (*Terminalia catappa*) and only about three meters from my balcony. This afforded an excellent opportunity to watch the birds during the whole breeding cycle, as they were quite confiding and never noticed me while I was watching them. Unhappily, in neither case was a brood reared, as the young were taken at night by an unknown predator or predators before reaching the fledging stage.

Song

I heard two different kinds of notes, which were uttered by both sexes.

The first of these, which I would call the song, is a rhythmical strophe of

similar but distinct notes like *u-u-u-u*, gradually becoming more rapid and ascending, instead of descending, the scale (Young, 1929:35). While the bird is singing the crest is erected to its full height and the head and tail go up and down with the calling. This song is uttered in such a way that the male and female are calling with this strophe to each other. I have heard a rather similar type of song, also uttered by both sexes, from relatives of this species, *Thamnophilus doliatus* and *T. punctatus*.

The other note of *Sakesphorus* is a questioning *tjuuurrr*, also uttered by both sexes.

Display

Though I never saw any display proper, I twice observed courtship feeding, in which the male fed the female with an unidentified object. The first case was on March 2, 1952, four days after the young of the first brood disappeared. The pair was foraging in a nearby bush when suddenly the male pushed something into the female's bill and immediately afterwards copulated with her.

The second instance was on April 11, 1952, the very day the repairing and rebuilding of the old nest was started in preparation for the second brood. Both birds were feeding about 20 meters from the nest tree, when suddenly the male fed the female. Then a second female arrived and was driven away by the pair. They were very excited, with long, erected necks, wings dropping somewhat, crests erected to their full height, and tails held somewhat elevated with the rectrices widely spread so that their white tips were very conspicuous.

Breeding Season

Eggs of this species in the Penard oölogical collection from Surinam now preserved in the Leiden Museum are dated January to May, and September (Hellebrekers, 1942).

My own data fall in the same periods. On January 16, 1947, I found a nest containing two eggs. The first egg of the first brood in my garden was laid on February 8, 1952, while the first egg of the second brood was laid on April 20, 1952. I also found a nest containing one egg on September 7, 1946. There are four seasons in Surinam, approximately as follows: a short rainy season, November 15 to February 15; a short dry season, February 15 to April 15; a long rainy season, April 15 to August 15; and a long dry season, August 15 to November 15. In all four seasons nests with eggs of this species are to be found, but data are too few to demonstrate nesting peaks and other characteristics of the breeding cycle.

Nest Building and Nest

The nest is a basket neatly woven of long and elastic pieces of straw, grass, and moss in the fork of two twigs in a shrub or a low tree, usually not far above the ground (fig. 1).

Nest building is accomplished by both sexes but the male is certainly more active than the female.

In the second brood in my garden the old nest of the first brood was used

Fig. 1. Nest and eggs of *Sakesphorus canadensis*, the Black-crested Ant Shrike. Photographed near Paramaribo, Surinam on January 16, 1947, by F. Haverschmidt.

again. It was only a small remnant, most of the bottom being gone. On April 11, the first day of construction, the male arrived with nest material six times, against one time for the female, beween 4:00 and 4:30 p.m. On April 12 I watched from 12:59 to 1:59 p.m. during which period the male

came 10 times and the female only twice. On April 13 I observed from 8:35 to 9:35 a.m., and the male came 12 times against 3 times for the female.

Nest building is conducted very rapidly in the first days but then it slows down and the finished nest is left alone for some days before the first egg is laid.

In the first nesting construction started on February 1, 1952, building was seen for the last time on February 4, and the birds were not seen again at the nest. The first egg was laid on February 6. Thus building lasted four days in this case.

In the second nesting the repairing of the old nest started on April 11, building was conducted actively on April 12 and 13, but on April 14 the birds were not seen at all. On April 15 and 16 nest material was taken only a few times to the nest in the early morning and then activity stopped. On April 17 the birds were not seen at all. On April 18 at 7:00 a.m. both birds were together at the nest. The female sat down in it for a moment; then both left. The first egg was laid on April 19. At the time the first egg was laid, in both nestings, I could distinguish the egg through the nest bottom while standing under the tree.

The building itself is interesting to watch. When weaving the long, elastic straws around the fork in which the nest cup will be made, the bird pushes a piece of straw forward over the twig and then pulls it under the twig backwards again. For the inner construction of the nest cup spider web as well as plant wool and moss is used. I never saw feathers in a nest. The nest cup is made of very fine and thin material, the shaping of it being accomplished by the usual wriggling movements of the sitting bird.

In the second nesting the pair had a rather difficult job completing the nest, as other birds (including *Pitangus sulphuratus*, *Thraupis episcopus*, and *Amazilia fimbriata*) regularly stole material from the nest in the course of construction.

Though rather flimsy and weak in appearance the nest is in reality very strong. This is necessary as it has to endure strong winds, in which the branch bearing the nest sways violently, as well as heavy rain showers. Long after this nest had been abandoned it was still in good condition.

Egg Laying

In all cases I know of the clutch consisted of two eggs, the regular number for the Formicariidae (Skutch, 1946:19). In both nestings in my garden the eggs were laid on alternate days.

In the first nesting the first egg was laid on February 6 between 12:00 n. and 4:00 p.m., the second one on February 8 between 7:00 a.m. and 5:00 p.m.

In the second nesting the first egg was laid on April 19 between 7:00 and 11:00 a.m., while the second egg was laid on April 21 between 7:30 and 11:45 a.m.

I refrained from weighing and measuring the eggs. For measurements the reader is referred to the material given by Hellebrekers (1942) from the Penard collection.

Incubation

In both cases regular incubation started after the laying of the second egg, though the first egg is covered during the day, from time to time, by one of the birds, but not at night. In the second nesting the first egg remained uncovered on April 19 during the entire day and throughout the following night though it rained hard. The nest was well protected by the big overhanging leaves but eventually the nest and its contents must have become thoroughly wet. On April 20 the female was at the nest at 10:00 a.m. and stayed until 10:07 when she was relieved by the male who stayed until 10:50. The female came back at 1:00 p.m. and sat in the nest until 1:30 when she was relieved by the male who sat until 1:55. Then the nest was left alone until 4:35 when the female came once more, only to leave at 4:38 when she was relieved by the male, who in turn remained only a few minutes. The nest was then left alone and the single egg was not covered during the night. The same was observed in the first nesting when the single egg was left uncovered during two nights.

This is in sharp contrast to the true incubation period, when the eggs are practically never left uncovered and both sexes incubate in very long sessions (see below).

The male and female shared in incubation, but only the female spent the night on the eggs. This has also been observed in other antbirds (Skutch, 1946:20). During the day, however, the male performed the larger part of incubation.

The night watch of the female was a very long one, as sometimes she had already been sitting on the eggs a rather long time before sundown, and relief the next morning often took place long after dawn. (Sundown in this region is between 6:00 and 6:30 p.m. and dawn about 6:00 a.m.) A few examples may illustrate this. February 10: female arrives at 5:45 p.m. and leaves next morning at 7:45 a.m. Male arrives at 7:55 a.m. February 12: female comes at 6:30 p.m., relieved by male the next morning at 7:40 a.m. April 25: female arrives at 5:00 p.m., relieved on April 26 at 6:25 a.m. April 26: female comes to nest at 5:54 p.m., relieved next morning at 6:32 a.m.

The nest relief after the night watch was practically the only instance in

TABLE 1
INCUBATION ON APRIL 27

Female		Male	
Intervals (based on 24-hour clock)	Time (in minutes)	Intervals (based on 24-hour clock)	Time (in minutes)
Dawn–0632	32	0632–0708	36
0708–0803	55	0803–0845	42
0845–1042	117	1042–1124	42
1124–1224	60	1224–1514	170
1514–1625	71	1625–1810	105
Totals	335 (5 hrs., 35 min.)		395 (6 hrs., 35 min.)

which the eggs were left uncovered even briefly, as the female sometimes left the nest before the male had arrived, especially when he was late. On April 22 the female left the nest at 6:45 a.m. and started calling loudly. In the distance I heard the note of the male. It was 7:14 a.m. before the male settled down on the eggs. In the intervening period the eggs were left uncovered.

Nest relief practically always began with calling of the relieving bird as it approached the nest. This calling was begun at a long distance, and resulted in the incubating bird becoming immediately active and starting to respond while still sitting. Its crest was erected to its full length and its body went up and down with its calling. Strangely, both notes were used during nest relief. I never could establish a difference in their meanings. In most cases the incubating bird hopped directly out of the nest on the arrival of its mate. Rarely it had to be pushed aside.

As already pointed out by Skutch (1946:20) for other antbirds, the sessions of the incubating bird are very long, especially in the afternoon. Particularly long sessions noted in the present study were observed on April 25 when the female was on the nest from 12:06 to 2:37 p.m. (2 hours, 31 minutes), and the male sat from 2:37 to 5:00 p.m. (2 hours, 23 minutes). Table 1 shows the details of one whole day's watch, April 27.

During the whole of the incubation period both birds brought, from time to time, a single stem of straw or grass which was worked into the nest. This maintenance coincided mostly with ordinary nest relief, but it was always less frequent. During the day of April 27 it was done four times: by the male at 7:38 a.m. and 12:24 p.m., and by the female at 3:14 and 4:25 p.m. Twice I observed nest repair that did not coincide with reliefs. In these cases the incubating bird rose from the eggs to allow the other to weave the piece of straw into the nest. This happened on April 27 at 7:38 a.m. and again on April 28 at 4:54 p.m., both times while the female was sitting. This nest

TABLE 2
FEEDING OF THE YOUNG

Date	Periods of observation (based on 24-hour clock)	Feedings by ♂	Feedings by ♀	Total feedings
		BROOD I		
February 23	1220–1320	2	2	4
February 23	1320–1420	0	1	1
February 24	1015–1115	0	0	0
February 24	1250–1350	1	2	3
February 25	1450–1550	1	1	2
February 26	1655–1755	2	1	3
Totals	six hours	6	7	13
		BROOD II		
May 5	1200–1300	1	0	1
May 6	1000–1100	3	2	5
May 7	1200–1300	2	0	2
May 8	1015–1115	1	2	3
May 9	1040–1140	0	0	0
May 10	1030–1130	6	3	9
May 10	1625–1725	3	1	4
May 11	950–1050	4	3	7
May 11	1350–1450	2	3	5
May 11	1620–1720	2	1	3
May 13	1011–1111	4	1	5
May 14	1020–1120	4	2	6
May 15	1030–1130	0	2	2
May 15	1219–1319	4	2	6
Totals	fourteen hours	36	22	58
Totals both broods	twenty hours	42	29	71

repair continued throughout the incubation period and was last seen on May 4, one day before the hatching of the eggs.

Incubation lasted 14 days in both cases. In the first nesting the first egg was laid on February 6, the second on February 8, when incubation began. The first egg hatched on February 22 at 6:30 a.m. and the second one at 10:45 a.m. In the second nesting the first egg was laid on April 19, the second on April 21, when incubation started. The eggs hatched on May 5 before 11:55 a.m.

REARING OF THE YOUNG

The newly hatched nestlings are, as in other formicariids except the genus *Formicarius* (see Skutch, 1946:21), completely naked and blind. The eyes

of those I studied began to open at the age of three days and were wholly open at four days. The gape is orange-yellow.

On the day of hatching they were constantly covered by one of the parents but by the second day they were left uncovered for some time after a feeding. On May 6 (eggs hatched May 5) the male fed the young at 10:37 a.m. and left immediately afterward. At 10:50 the male fed them again and left, returning with food at 10:57.

In the following days the young were covered very irregularly during the day but always during heavy rain showers; this lasted until the last days I was able to watch them, *i.e.*, on May 13 and 15 respectively, when they were 8 and 10 days old and the male sheltered them during heavy rains.

The young were fed by both parents and here again the male's share was slightly larger than the female's. In Table 2 is given the feeding frequency in both nestings as observed during 20 one-hour periods. The food consisted

Table 3

Daily Weights of the Young in Grams

Date	Age in days	Nestling 1	Nestling 2
May 5	0	3.3	—
May 7	2	6.1	3.5
May 8	3	8.0	4.1
May 9	4	10.3	5.8
May 10	5	10.3	5.8
May 11	6	11.6	6.6
May 12	7	13.6	8.7
May 13	8	15.6	10.9
May 14	9	15.8	10.9
May 15	10	16.8	—

mostly of insects brought one at a time and as the nest was so close by I was able to identify the food in several instances. I recognized spiders, small butterflies and moths, grasshoppers, caterpillars, and even a very small lizard which was taken to the young by the male on May 14.

The feces of the nestlings were swallowed by both parents, immediately after feeding, while they stood on the nest. In the cases of large droppings they were taken away. I also observed another kind of post-feeding behavior, called "nest-probing," which is of common occurrence in small passerine birds. After feeding, and the swallowing of a clump of feces, the bird remains on the nest, looks into the nest bottom, and starts pecking into the middle of it, afterwards swallowing an unidentifiable object. The following example illustrates a typical case: on February 26, the male arrived at 4:58 p.m., fed the young, and swallowed a clump of feces, afterwards pecking into

the middle of the nest, making wriggling movements to reach something on the bottom. When his head emerged again he swallowed something which remained unknown to me. He was busy in this way until 5:04 p.m., and remained thus engaged for six minutes at the nest. Though the meaning of this nest-probing is not yet quite clear it seems likely to be a removal of nest parasites and also of remnants of food. It is certainly something quite different from the swallowing of the feces.

Just as in the incubation period, only the female spent the night covering the nest. This lasted until the last day I watched this brood. The remaining nestling was then (May 15) 10 days old.

In Table 3 are given the daily weights of the nestlings of the second brood. As is clear from these figures one of them soon fell behind in weight and the difference in size was considerable in the last days. On May 15, at the age of 10 days, it lay dead in the nest. It was already decomposing and was apparently too big to be removed by the parent birds. In the morning of May 16 the remaining youngster had vanished and evidently had been taken the night before by an unknown predator, though the nest was entirely intact. The same had happened to the first brood when, on February 27 at 7:00 a.m., the nest proved to be empty but also quite intact. Whatever had happened had perhaps occurred just before the male arrived with food, followed by the female. Both birds sat on the nest rim looking into the empty nest, and then left.

Summary

Sakesphorus canadensis (Family Formicariidae) is a common bird in the undergrowth of the secondary forest in the coastal area of Surinam; it is equally numerous on the sand reefs, in the mangroves along the coast, and in the wastelands and plantations. The song, which is uttered by both sexes, is described. Courtship feeding occurs. I have recorded nests from January until May, and in September. The nest is a neatly woven basket in the fork of a twig, usually placed not far above the ground in shrubbery. Two successive nestings by one pair were observed and studied in some detail. The nest is built by both sexes though the male's share of construction is the larger. The clutch consists of two eggs which are laid on alternate days. Incubation starts after the laying of the second egg and lasts 14 days. The male and female share in incubation, the female sitting at night, and the male's share during the day being a trifle larger than the female's. The nestlings are fed by both parents but again the male's part is the larger. Daily weights of the nestlings are given as well as data on frequency of feeding. The nestlings are covered by both sexes during the day of hatching and later on, irregularly, during daytime. At night they are covered by

the female alone. The young are fed insects, one at a time. Once they were given a small lizard. The food was secured in trees, in shrubbery, and on the ground. Feces of the young were swallowed or taken away when too large. Another kind of post-feeding behavior, "nest-probing," possibly consisting of the removal of nest parasites and food remnants, was observed.

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